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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/240,632

02/01/1999

YUTAKA MURAKAMI

402/568

7584

7590

02/23/2007

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EXAMINER

KIM, KEVIN

ART UNIT

PAPER NUMBER

2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/23/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 09/240,632	<b>Applicant(s)</b> MURAKAMI ET AL.	
	<b>Examiner</b> Kevin Y. Kim	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 February 2005 and 05 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-13,33,37-40,42-44,46-49,51,53-55 and 57-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-13,33 and 37 is/are allowed.
- 6) ☒ Claim(s) 38-40,42-44,46-49,51,53-55 and 57-59 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                   |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                              | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

### DETAILED ACTION

1. The indicated allowability of claims 38-40, 42-44,46-49,51,53-55,57-59 is withdrawn in view of the newly discovered reference(s) to Seki et al (US 5,771,224). Rejections based on the newly cited reference(s) follow.

#### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 38-40, 42-44,46-49,51,53-55,57-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seki et al (US 5,771,224 submitted by applicant).

Claims 38, 39 and 49.

Seki et al discloses a modulating method, see Fig. 3, comprising;

generating a first multi-value modulation signal (QAM),

generating a second multi-value modulation signal (QPSK) wherein a channel distortion of the first multi-value modulation signal (QAM) is estimated by using only the second modulation signal (QPSK) to demodulate the first multi-value modulation signal in a receiver (see Fig.4) and

inserting the second multi-value symbols into the first multi-value symbols such that the resultant multi-value symbols constitute a multi-value symbol stream (see col. 12, lines 5-15).

Seki et al fails to disclose all the subject matter as explained above but for a frequency offset estimation of the the second modulation signal (QPSK). However, it is well known that a transmission signal is subject to frequency as well as phase and amplitude distortion during transmission and estimation of frequency offset is generally performed at the receiver to remove frequency distortion. Thus, it would have been obvious to one skill in the art at the time the invention was made to include a frequency offset estimation means in the receiver of Seki et al for the purpose of removing any frequency distortion of the received modulation signal as well.

Claims 40 and 51.

A differential encoding and decoding is well known in the art to reduce bandwidth and thus would have been obvious to differentially encode the transmission signal and differentially decode and demodulate at the receiver.

Claims 42,43,44,53,54 and 55.

One of the modulation signals is a OPSK signal, which is subjected to “a phase shift keying.” BPSK is another variation of a PSK modulation.

Claims 46, 47,57 and 58.

Another of the modulation signals is a QAM signal, a variation of which is a 16 QAM includes “at least an 8-value” QAM.

Claims 48 and 59.

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Seki et al describes a QAM and a PSK as the first and second modulations respectively, as explained above. Although Seki et al is silent as to the ratio "equal to 0.9 to 1.5 times" of a maximum signal point amplitude of the first modulation to that of the second modulation, it would have been an obvious matter of design choice, lacking criticality.

***Allowable Subject Matter***

4. Claims 1,3-13,33 and 37 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

February 10, 2007

AU 2611

KEVIN KIM  
PRIMARY PATENT EXAMINER

